Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte
BENJAMIN T. K. CHEN,
and ROGER LOK

Appeal No. 1997-3729
Application No. 08/362,107

ON BRIEF

Before LIEBERMAN, KRATZ and NAGUMO, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the refusal of the examiner to allow claims 1, 2, 6 through 13 and17 through 23, as amended subsequent to the Final

Rejection. [1]

THE INVENTION

The invention is directed to a radiation sensitive emulsion having maximum iodide concentrations nearer the surface of the grain wherein the exterior portion of the grain accounts for up to 15 percent of total silver. The emulsion additionally contains specific thiosulfonate and sulfinate compounds. Additional limitations are provided in the following illustrative claim.

THE CLAIMS

Claims 1, 6 and 11are illustrative of appellants' invention and are reproduced below.

1. A radiation sensitive emulsion comprised of a dispersing medium and silver iodochloride grains

WHEREIN the silver iodochloride grains

are cubical grains bounded by {100} crystal faces satisfying the orientation and spacing of cubic grains,

contain from 0.05 to 1 mole percent iodide, based on total silver, with maximum iodide concentrations located nearer the surface of the grains than their center, comprise at least one {111} crystal face,

and wherein said emulsion further comprises a thiosulfonate of Formula I and a sulfinate of Formula II

wherein Formula I is

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[1]Claims 3 and 14 were cancelled in an amendment after Final Rejection received March 18 1996, Paper No. 6 and entered by the examiner.

$$Z_1SO_2SM_1$$

wherein

Z_1 is alkyl, aryl, heteroaryl, arylalkyl, or a polymeric backbone wherein the thiosulfonate group is repeated and

M_1 is a monovalent metal or a tetraalkylammonium cation, and

Formula II is

$$Z_2SO_2M_2 \qquad (II)$$

wherein

Z_2 is alkyl, aryl, heteroaryl, arylalkyl, or a polymeric backbone wherein the sulfinate group is repeated and

M_2 is a monovalent metal or a tetraalkylammonium cation, and wherein iodide forming the grains is confined to exterior portions of the grains accounting for up to 15 percent of total silver.

6. A radiation sensitive emulsion according to Claim 1 wherein the silver iodochloride grains include tetradecahedral grains having {111} and {100} crystal faces.

11. The emulsion of Claim 1 wherein said silver iodochloride grains comprise about 99% silver chloride.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references.

Takada et al. (Takada)	5,389,508	Feb. 14, 1995
Lok	5,399,479	Mar. 21, 1995
Shuto et al. (Shuto)	5,110,719	May. 5, 1992
MacIntyre et al. (MacIntyre)	5,411,855	May. 2, 1995
Hei (Kokai Patent Application) (English language Translation)	3-208,041	Sep. 11, 1991

THE REJECTIONS

Claim 1, 2, 6 through 13 and 17 through 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takada in view of Lok, Fuji, MacIntyre or Shuto.[2]

Claims 1, 2, 6 through 13 and 17 through 23 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of U. S. Patent Nos. 5,726,005 and 5,736,310 in view of Lok, Fuji, MacIntyre or Shuto. [3] [4]

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner and agree with the examiner that the rejections under §103(a) and the judicially created doctrine of obviousness-type double patenting are well founded. Accordingly, we affirm these rejections for the reasons set forth by the examiner and our additional rationale.

As an initial matter, appellants submit that three groups of claims are independently

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[2]Although the examiner includes claims 3 and 14 in the statement of the rejection, we observe that both claims have been cancelled by the appellants. See Footnote No. 1.

[3]The rejection of record was entered over the underlying applications, 08/649,391 and 08/651,193, each of which are continuation-in-parts of application Serial No. 08/362,283.

[4]Although the examiner includes claims 3 and 14 in the statement of the rejection, we observe that both claims have been cancelled by the appellants. See Footnote No. 1.

patentable over the § 103 rejection but stand or fall together with respect to the obviousness-type double patenting rejection. The three groups of claims include Group 1 which contains claims 1, 2, 7-10, 12, 13 and 18-22. Group 2 contains claims 6 and 7. Group 3 contains claims 11 and 23. Accordingly, we select claims 1, 6 and 11 as representative of the rejection under §103 and claim 1 as representative of the rejections on the grounds of obviousness-type double patenting. See 37 CFR § 1.192 (c)(7)(1996).

The Rejection under § 103

It is the appellants' position that the primary reference to Takada is deficient in that the "grain structure is not disclosed or suggested." See Brief, page 5. Appellants submit that there is no suggestion "that would lead one to the claimed grain with iodide forming the grains being defined to exterior portions of the grain accounting for up to 15% of the total silver while the grains contain from 0.05 to 1 mol % iodide based on total silver." Id. Furthermore, "nowhere is there a suggestion that iodide be restricted to the exterior 15% of the silver halide grain." Id. We disagree.

We find that Takada is directed to a silver halide photographic material having improved photographic properties such as fog and sensitivity. See column 1, lines 9-11. We find that material comprises at least one light sensitive silver halide emulsion layer formed on a support having a silver halide phase containing silver iodide. See column 1, lines 46-54. We find that a low fog and high sensitivity material are obtained by

performing formation of silver halide grains while iodide ions are being rapidly generated. See column 2, lines 21-24.

The range of iodide ions overlaps that of the claimed subject matter and is described as being preferably from 0.1 to 20 mole percent, more preferably from 0.3 to 15 mole %, and most preferably from 1 to 10 mole %. See column 9, lines 60-63 and column 13, lines 1-4. Accordingly, we conclude that the requirement of 0.05 to 1 mole % iodide is disclosed by Takada. We find that the silver iodide phase of the grain is preferably formed on the edges of a tabular grain, column 10, lines 8-10, and preferably, "the compositions of the covering shells, the deposited layers, and the epitaxial portions of a silver halide containing silver iodide formed by the use of the iodide releasing method of the present invention have high silver iodide contents." See column 14, lines 3-7. We find that, "[i]t is preferable to prepare the outermost shell near the surface of a silver halide grain by using the iodide ion releasing method of the present invention." See column 16, lines 53-55. We conclude therefrom that the iodide ion is present essentially in the outer shells of the silver halide grain. Our position is further supported by the disclosure that, "[t]he iodide content of the substrate grain is preferably 0 to 15 mole %, more preferable 0 to 12 mole %, and most preferably 0 to 10 mole %." See column 15, lines 11-13. Accordingly, we further conclude that there is no requirement that any iodide content be present in the

substrate grain.

We find that the "surface of a grain" is defined as, "a region at a depth of about 50 Å from the surface of a grain." See column 16, lines 59-61. We further find the overall size of the grain ranges from 0.05 μm to 10 μm or more. See column 17, lines 45-51. In this respect we adopt the examiner's analysis, findings of fact and conclusions that, "the outer 50 Å of the majority of [the] grains within the preferred size range set forth by Takada et al. corresponds to a portion containing less than 15% of the silver." See Supplemental Examiner's Answer, page 3.

As to the grain size, Takada discloses grains wherein "it is preferable that 60% or more of the surface each regular crystal grain is of (111) face or (100) face." See column 13, lines 31-33. We find that, "[r]egular crystal grains, 60% or more of the surface which is either (111) face or (100) face can be obtained. . . . " See column 13, lines 39-41. We further find that the grain may be "a cubic grain constituted by (100) faces," column 13, lines13-14, and may be, "[a] grain having two or more different faces such as a tetradecahedral grain having both (100) and (111) faces." See column 13, lines 25-26. Indeed appellants agree that, "Takada et al proposes the use of the iodide releasing compound of their invention in virtually every grain combination, including at column 13, line 28, tetradecahedral grain." See Brief, and sentence bridging pages 7 and 8. Accordingly, we conclude that Takada discloses the grain combination required by the

claimed subject matter.

It is appellants' contention throughout the Brief that, "[t]he examiner has provided no teaching that would lead one to select the grain or teach [one] how to form the grain such as specified in the claims." See Reply Brief, pages 4 and 5. While we acknowledge that Takada discloses numerous combinations of photographic emulsions, the fact that a patent discloses other effective combinations, does not render any particular formulation less obvious. We find this particularly true because the claimed subject matter is used for the identical purpose taught by the prior art, i.e., a photographic emulsion having a silver halide substrate and a silver iodide shell. See Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 807-08, 10 USPQ2d 1843, 1846 (Fed. Cir.), cert. denied, 493, U.S. 975 (1989). Furthermore, in a § 103 inquiry, the teaching of a preferred specific embodiment is not controlling since the disclosure of the entire prior art including the non-preferred embodiments must be considered. Id. Accordingly, we conclude that it would have been obvious to the person having ordinary skill in the art to have utilized the teachings of Takada to obtain photographic emulsions [and the preparation thereof], within the scope of the claimed subject matter.

As to claim 6 directed to tetradecahedral grains having {111} and {100} faces, appellants have explicitly acknowledged the teachings of Takada at column 13, line 26 specifically disclosing the requisite grain of the claimed subject matter. We accordingly

conclude that the utilization of such grain would have been obvious to the person having ordinary skill in the art.

Furthermore as to claim 11 requiring about 99% silver chloride, we previously found that Takada explicitly teaches as little as 0.1 mole % silver iodides, the balance of the silver halide accordingly including silver chloride. See column 9, line 61, and 65, and column 13, line 2. We accordingly conclude that the presence of 99% silver chloride required by the claimed subject matter is a matter within the skill of the art.

Finally, as to the presence of thiosulfonate and a sulfinate compound having a particular formula, Takada discloses that, "[p]hotographic emulsions used in the present invention may contain various compounds in order to prevent fog during the manufacturing process, storage, or photographic processing of a light-sensitive material, or to stabilize photographic properties." See column 23, lines 29-24. The compounds of the claimed subject matter are not specifically disclosed in that section. The example of the specification however, provide for the addition of sodium p-toluene sulfinate at column 36, lines 15-23, within the scope of the invention, Table III, and the addition thereto of compound F-14, a sodium thiosulfonate within the scope of the claimed subject matter. See column 36, line 57 and column 52 wherein F–14 is identified by formula. We further find that Takada further teaches that the individual layers contained F-1 to F-17. See column 42, lines 15-19. F-13 is identified at column 51 as constituting a sodium sulfinic acid within the scope

of the claimed subject matter and F-14 disclosed at column 52, we previously found were identified as a sodium thiosulfonate within the scope of the claimed subject matter.

Based upon these findings, we conclude that it would have been obvious from the teachings of Takada alone to have added each of the required thiosulfonate and sulfinate compounds of the claimed subject matter to the photographic emulsions prepared therein.

We further find that the disclosure of adding each of the thiosulfonate and sulfinate compounds to a silver halide emulsion layer [for imparting high sensitivity and resistance to storage changes], as required by the claimed subject matter, is disclosed by each of the secondary references, Lok, column 3, lines 50-60, Shuto, column 2, lines 5-44 and MacIntyre, column 3, lines 46-62. Based upon the above findings, we further conclude that it would have been obvious to the person having ordinary skill in the art to add the aforementioned mixture of compounds to the silver halide emulsion of Takada both in view of the motivation provided by the secondary references and further in view of the addition of these compounds by Takada. See Takada, column 42, lines 15-19. Based upon the above findings and analysis, we conclude that the examiner has established a prima facie case of obviousness with respect to the claimed subject matter.

As a rebuttal to the prima facie case of obviousness, appellants rely on the data present set forth in Table IV of the specification on page 56 as showing unexpected results [in that], "only the invention emulsion providing both suitable speed and low Dmin." See

Brief, page 6. Having reviewed the data presented, we conclude that appellants have not met their burden of showing unexpected results. We agree with the examiner for the reasons cited in the answer at pages 8-9. In re Klosak, 455 F.2d 1077, 1080, 173 USPQ 14, 16 (CCPA 1972). It is not sufficient to assert that the results obtained are unusual or unexpected. The burden of showing unexpected results rests on those who assert them.

Furthermore, having reviewed the data presented, we conclude that the showing in Tables IV on page 56 is not commensurate in scope with the degree of protection sought by the claimed subject matter and are in agreement with the examiner's conclusion, Answer, pages 8 and 9 and Supplemental Answer, pages 3 and 4. See In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983); In re Tiffin, 448 F.2d 791, 792, 171 USPQ 294, 294 (CCPA 1971). It is well settled that "[o]bjective evidence of nonobviousness must be commensurate in scope with the claims.") (quoting In re Lindner, 457 F.2d 506, 508, 173 USPQ 356, 358 (CCPA 1972); In re Dill, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979) ("The evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains.").

The evidence submitted in Table IV is limited to a single Example, D, within the scope of the claimed subject matter. We find that Comparisons A and B contain no antifogging additives and accordingly fail to compare the claimed subject matter with the

closest prior art. Accordingly Table IV of the specification to that extent fails to compare the present invention with the closest prior art of record, i.e., a photographic emulsion having antifoggants present therein. See In re Baxter Travenol Labs., 952 F.2d 388, 392, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991); In re De Blauwe, 736 F.2D 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984). As to the balance of the comparison, we find that only a single Example falls within the scope of the claimed subject matter, i.e., D. That example utilizes a single combination of a thiosulfonate and a sulfinate compound. The prior art suggests using these compounds together with core-shell grains in photographic emulsions. In comparison the claimed subject matter is directed to a generic class of thiosulfonate compounds in combination with a generic class of sulfinate compounds. In addition, the emulsions of Table IV are each directed to tetradecahedral morphology. The subject matter of claim 1 contains no such limitation. Furthermore, the claimed subject matter is not limited to any given proportions of compounds I and II. In addition, we find that the single proportion of 0.3 M % iodide is not reflective of the scope of proportions of the claimed subject matter directed to 0.05 to 1 mole percent iodide. Based upon the limited showing, we conclude that a single example directed to one given amount of one set of antifogging compounds selected from Formula I and II under a specific set of condition, fails to reflect the scope of the claimed subject matter. Based upon the above analysis, we conclude that the evidence of record is not commensurate in scope with the claimed subject matter.

Accordingly, based on our consideration of the totality of the record before us, and having evaluated the prima *facie* case of obviousness in view of appellants arguments and evidence, we further conclude that the preponderance of evidence weighs in favor of obviousness of the claimed subject matter within the meaning of § 103. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The Obviousness-Type Double Patenting Rejections

The sole issue raised by the appellants in the obviousness-type double patenting rejection is that there is no teaching, "to select grains from there such as instantly claimed and then utilize the antifoggants of Formula I and Formula II with these grains." See Brief, page 7 and generally the Reply Brief, pages 3 and 4. There is no argument and indeed the appellants concede that the grains "include those such as claimed in the instant invention." See Reply Brief, page 3.

All proper double patenting rejections rest on the fact that a patent has been issued and a later issuance of a second patent will continue protection beyond the date of expiration of the first patent of the very same invention claimed therein or of a mere variation of that invention which would have been obvious to those of ordinary skill in the relevant art. See In re Kaplan, 789 F.2d 1574, 1579-80, 229 USPQ 678, 683 (Fed. Cir. 1986).

Our analysis of the examiner's rejection of claim1 under the doctrine of judicially

created double patenting parallels that for a § 103 rejection. While the double patenting rejection is analogous to a failure to meet the non-obviousness requirement of 35 U.S.C. § 103, that section is not itself involved in double patenting rejections because the patent principally underlying the rejection is not usually prior art. In re Braat, 937 F.2d 589, 592-93, 19 USPQ2d 1289, 1291-92 (Fed. Cir. 1991); In re Longi, 759 F.2d 887, 892-93, 225 USPQ 645, 648 (Fed. Cir. 1985); In re Braithwaite, 379 F.2d 594, 600 n.4, 154 USPQ 29, 34 n.4 (CCPA 1967). When considering whether the claimed subject matter is an obvious variation of the invention defined in the claims of U.S. Patent Nos. 5,726,005 and 5,736,310, the disclosure of the patent may not be used as prior art.

Our analysis of the claims before us is based upon the disclosures of Lok, Shuto and MacIntyre each reference providing both a disclosure of the combination of compounds present in the claimed subject matter and the requisite motivation for the addition of those compounds to a silver halide emulsion. See our findings and conclusions *supra*. In as much as the appellants state that, "Serial Numbers 08/649,391 and 08/651,193 do disclose grains that include those such as claimed in the instant invention," Reply Brief, page 3, we conclude that it would have been obvious to add the combination of thiosulfonic and sulfinic salts as disclosed by each of the secondary references to the emulsion of the claimed subject matter. The argument presented by the appellants on page 4 of the Reply Brief directed to

the results on Table IV is not persuasive for the same reasons stated *supra* in regard to our discussion of the rejection under § 103(a). Accordingly, the rejection of the examiner is sustained.

DECISION

The rejection of claims 1, 2, 6 through 13 and 17 through under 35 U.S.C. § 103(a) as being unpatentable over Takada in view of Lok, Fuji, MacIntyre or Shuto is affirmed.

The rejection of claims 1, 2, 6 through 13 and 17 through 23 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of U. S. Patent Nos. 5,726,005 and 5,736,310 in view of Lok, Fuji, MacIntyre or Shuto is affirmed.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

PAUL LIEBERMAN Administrative Patent Judge	))))))) BOARD OF PATENT
PETER F. KRATZ Administrative Patent Judge	) APPEALS) AND) INTERFERENCES
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